

**Background**  
This is a patent application for a low oil cream-like substance containing protein, fat, oil, and water, and for a method of manufacturing the same. The invention is described in the attached drawings and the accompanying text for the purpose of the present invention.

**Notes**  
1. The invention is a low oil cream-like substance containing protein, fat, oil, and water.  
2. The invention is a method of manufacturing the same.

396-21852

**Abstract**  
A low oil cream-like substance containing protein, fat, oil, and water, and a method of manufacturing the same.

**GENERAL CONTENTS**

- [Claim 1] The manufacturing method of the low oil cream-like substance characterized by adding and agitating a lipase agent into the mixture of 50% or less of oil, and water.
- [Claim 2] The manufacturing method of the low oil cream-like substance according to claim 1 which is an micro-organisms to which a lipase agent has lipase productivity.
- [Claim 3] The manufacturing method of the low oil cream-like substance according to claim 1 or 2 which is that in which a lipase agent contains the lipase which has activity in the 1st place of activity, and the 2nd place.
- [Claim 4] The manufacturing method of the low oil cream-like substance according to claim 1 to 3 with which oil content is a liquid oil.
- [Claim 5] The manufacturing method of the low oil cream-like substance according to claim 1 to 4 with which the aqueous solution of 50% or less of oil does not contain an emulsifier.

**Detailed Description of the Invention**

**[0001]**  
**[Industrial Application]** Invention. This invention relates to the manufacturing method of an extremely stable cream-like substance by low oil. It not only can use for manufacture of cream-like food, such as whipped cream in the food industry field, meringue, margarine, and ice cream, but it is widely used for manufacture of cosmetics, drugs, other chemistry articles, etc.

**[0002]**  
**[Description of the Prior Art]** In food industry, the needs of flavorizing of food and low-calorie content being are growing with diversification of a consumer's eating habits, and improvement in health-consciousness in recent years.

**[0003]** The function of the stability of this cream and the operation of the appetite character of the stability before a whip have been supported by using together various fat and water and lecithin as an emulsifier with the cream which uses the former, for example, vegetable oil. However -- conventional cream -- an oily feeling and substance -- the content of the fat which gives the taste to oil and fat is usually required for at least 40% or more, and this has become the high calorie source of cream needs.

0004] Additives, for example by JP 54-37439, B, in order to secure the stability of emulsification or chock, caseinate, gummy, etc. are used, but these additives cannot say it is a desirable thing to be a part of the flow of a product.

0005]

Problem(s) to be solved by the invention: Although the preparation methods of various emulsification agents including above-mentioned illustrations have so far been studied widely, however, the present invention is the physical properties, stability, and the cream-like substance is low oil it can be satisfied (10). All of a substance in respect of flows are not developed, furthermore, usually additives, such as an emulsifier and a stabilizing agent, are indispensable to manufacture of this cream-like substance, these are used for it, and the cream-like substance which is 30% or less of oil further, and was moreover excellent in firmness and stability is not yet manufactured.

0006] Therefore, the purpose of the invention is low oil and not using an emulsifier, a stabilizing agent, a thickener, etc., it is also stable over a long period of time, and, moreover, there is no developing the new method of manufacturing a low oil cream like substance with characteristics, like firmness is good.

0007]

Means for Solving the Problems: This invention was wholly/entirely completed as a result of research, but the purpose should be attained, and on all events is: the manufacturing method of the low oil cream-like substance which are several percent - 30% (it is below the same weight %).

0008] That is, it is the manufacturing method of the low oil cream-like substance characterized by the invention adding and agitating a lipase agent into the mixture of 70% or less of oil, and water.

According to the invention, a little gas is added if needed into the mixture of the oil or water system (30% of oil, and water, etc.) so normally, a lipase agent can be added, and 10-20 degrees C of cream-like substances can be obtained by a very easy method (by agitating gently for 30 minutes - several hrs) at a room temperature or 70 degrees C preferably. Since an operation of a lipase agent will tell it the effect of balancing it is not required and if processes at high temperature, from 80 degrees C, addition of the lipase agent exceeding several percent is not desirable, in addition, the case where a high melting point component is included as oil - wax - tallow - what is necessary is to heat at 80 degrees C or less after fusion, to add a lipase agent, and just to make it set.

0009] The obtained cream-like substance is a matter of emulsification, its progress is very good, and it is stable for several months in 4 degrees C.

0010] Animal's microorganism, vegetation, or the origin can be used for the lipase agent used by this invention. For example, *Rhizopus Delicatulus* (*Rhizopus delimitus*), *Mucor* (*Mucor*), *Mucor* (*Mucor*), *Aspergillus Nigra* (*Aspergillus niger*), *Candida BIPHIDOCRA* (*Candida biphidocra*), *Geotrichum* although there are lipase of vegetable origin, such as when is carried rather type lipase of microorganism origin, such as a candy cane (*Candida*), a soybean, U.S. bean, and a coffee seed, and a cow's milk lipase of an animal, etc., it is convenient to usually use these essential items. The food lipase obtained as this lipase agent by conventional methods, such as others, an absorption process, an ion or a covalent binding method, and an enzyme extract, (lipase / lipase) The microorganism with the capability to produce this lipase (fermentation) such as mold, yeast, and bacteria, may be used, and a cream-like substance can be obtained stably.

(011) As oil, oil of vegetable oil and fat, animal fat and oil, or synthetic oil can be used. As animal-  
 and-plant system oil and fat for example, soybean oil, rapeseed oil, sunflower oil, castor oil, safflower  
 oil, sunflower oil, sesame oil, olive oil, flaxseed oil, castor oil, palm oil, palm kernel oil, palm oil, SAI-  
 fat, X is fat, cotton butter, rape butter, linseed oil, etc. (Japan TARIFF) beef tallow, lard, a milk fat  
 (oil oil), such hydrofined oil fat, such as emulsified oil, hydrogen fat- and oils, ester interchange fat and  
 oils, etc. and various are mentioned. Phage of normal chain, or alkyl chain-etc. substituted at post valent  
 carboxylic acid which has the saturation or the unsaturated bond which consists of carbon numbers 2-24  
 is synthetic oil. It can choose one of the group which consists of mono- with the slope of normal chain,  
 a side chain-like saturated or the polyunsaturated alcohol which has the saturation or the unsaturated bond  
 which consists of carbon numbers 1-24 - poly-ester amide. For example, there are n-alkyl ester of  
 methyl oleate, isopropyl myristate, maleic acid (HMD) ester, 3-alkoxy ester, 2-ethyl hexanoic acid  
 triglyceride, octanoic acid and decanoic acid, propylene glycol (HHSHPN) acid ester, etc. In addition,  
 but invention is not limited to this illustration at all.

(012) When manufacturing a cream-like substance in this invention, addition of an emulsifier, a  
 stabilizing agent, a thickener, etc. is unnecessary, and good as a new material only at water or deionized  
 water, oil, and a lipase agent. In addition, in order to acquire the firmness of a butter cream-like  
 substance, addition of the chloride of a metal (or polyvalent) (divalent), such as Ca, to 5% or less, for  
 example, calcium chloride, and sodium chloride, or zinc stearate, carbonic anhydride, etc. is effective  
 (0) to 10%.

(013) By the above-mentioned means, the production-etc. substance of the stability of low oil of 30%  
 or less of oil and firmness can be manufactured without adding a stabilizing agent, a thickener, or  
 emulsifier, etc.

(014)  
 Example)  
 A is M/K/R) to the mixture which consists of 100ml of water, 100ml of water, and 10g of  
 palm oil. Add to 2ml of lipase (made in NIPPON KAGAKU IYAKU, trade name "PARA GAZE (1000")  
 of the Mio Hara (Mio-) factory origin, and set it in a room temperature. The room (air) is used for 4 hours.  
 It is 100rpm. It agitated. As a result, this solution was stable for becoming the slope of good cream-  
 like substance and oil and moisture and decreasing for three months at 4 degrees C.

(015) To the mixture which consists of 100ml of water, 100ml of water, and 10g of rapeseed  
 oil (made in Hihara). This mixture (100ml of water, 100ml of water, and 10g of rapeseed  
 oil) was made. Lipase (100 mg/ml aqueous solution of the origin) were added.  
 Furthermore, potassium chloride and calcium carbonate were added 1%, respectively, and it agitated by  
 the same method as a work example 1 at 37 degrees C. Firmness and the texture of the obtained cream-  
 like substance were good, and it was stable for three months at 4 degrees C.

(016) Calcium chloride and sodium chloride are added in the mixture which consists of 100ml of water,  
 100ml of water, and 10g of 1% each. 1ml of lipase (product) made by HIGASHI 1, 100mg/ml  
 aqueous solution of the origin are added, and it is 400rpm at 40 degrees C. It agitated by  
 a method for 1.5 hours. The obtained cream-like substance was stable for three months at 4 degrees C.  
 See the above-mentioned examples.

(017) If it is lipase production bacteria MUKORO to the mixture which consists of 100ml of water,  
 100ml of water, 10g of soybean oil, and 1g of yeast extract. They are 200rpm of 1 platinum  
 (air) 200rpm when SEIKASHINSEI CHEMICAL (Mio-) origin. It agitated for five days.

As a result, the cream-like substance which was excellent in firmness was able to be obtained.  
[0118] The technique used was merely divided into two, which is, of work-example 5 in summer  
compounded with the conventional method separately, and hence the Meito Seiyaku Co., Ltd. make-up  
of the Candide SHIBINDORAN® (Candida albicans) origin Trade name "Lacose Off" (total of 0.5g  
of aqueous solution is used) and agitated like the work-example 1. Firmness held for five months at 4  
degrees C, and separation of the component was not accepted, but the cream-like substance obtained by  
this was stable.

[0119] They are 40 degrees C and 100rpm blowing air into work-example 6 work-example 1 using the  
raw material of a few-gram. It agitated for 5 hours, then if the obtained cream-like substance remained  
he whipped growth freezing of cream, and was excellent in firmness and it stored it for three months at 4  
degrees C, it was stable.

[0120] Add 0.2ml of lipase (made in Novo W BRUDISJES; Sigma, trade name "PANTAZE 1000") of  
SUCROPHORANES (sucrose isomer) origin to the mixed solution which consists of 100ml of work-  
example 7 deionized water, and Triton Bp, and set at 40 degrees C, it agitated by the same method as a  
work-example 1, and cold cream was obtained. The obtained cold cream was well exposed to skin, and  
was good cold cream size with sufficient firmness.

[0121]

Effect of the invention: The white cream-like substance excellent in the security (firmness) of low oil  
content (oil content is 10% or less) can be obtained by simple operation, without using additives, such as a  
surfactant, a stabilizing agent, and a thickener, if the technique of this invention is used. By this,  
manufacture of low-oil cream (low oil), such as whipped cream and meringue with a low oil, and  
meringue, or cream-rolls, choux, etc. is attained.

Translation done.